THE IMMIGRATION OF LEPIDOPTERA TO THE BRITISH ISLES IN 1981, 1982, 1983: A SUPPLEMENTARY NOTE

By R. F. Bretherton* and J. M. Chalmers-Hunt**

1981 was a year of poverty for most immigrant species except for probably the largest invasion yet reported of Danaus plexippus L. In 1982 many were abundant, the profusion of Trichoplusia ni Hufn. and Heliothis peltigera D. & S. being particularly notable. 1983 was one of the best since the Nineteen Twenties, especially for Colias croceus Fourc., Rhodometra sacraria L. and Agrius convolvuli L. A number of additional records, and some corrections which arrived too late or have otherwise come to hand may now be added to the main reports in Ent. Rec., 94: 81-87, 141-146; **95**: 89-94, 151-152; **96**: 85-91, 147-159, 196-201.

1981

Additions to Annexe II — Scarce immigrant species.

ORTHONAMA OBSTIPATA F. BERKS. Sunningdale, 28.7 (per M. Albertini).

AGRIUS CONVOLVULI L. Co. WICKLOW Rathdrum, 13.9 (R. F. Haynes).

HIPPOTION CELERIO L. DEVON S. Kingsteignton, November, caught by Mr. William Richards in garden (The Advertiser, December 4, per Bull. Amat. Ent. Soc. 41: 72).

CLOSTERA ANACHORETA D. & S. ESSEX S. Bradwellon-Sea, 2.6 (A. J. Dewick). Possibly immigrant.

APLASTA ONONARIA Fuessly. ESSEX S. Bradwell-on-Sea, 2.8 (AJD). Probably immigrant, otherwise a stray from Kentish colonies.

Additions to Annexe III - Danaus plexippus L.

AT SEA. Seen from m.v. Scillonian, 1.10, flying over the sea at about 30 feet in an easterly direction (Clive Jones, Ent. Rec. 96:81).

DEVON S. Prawle village, 27.10, one mid day, probably additional to those seen later on Prawle Point (P. J. Hopkin).

GLAMORGAN. Bridgend, 30.9, one watched on michaelmas daisies in garden (Owen Lewis, in lit. 21.9.84), Overton, Gower, September (Mrs. Jeffries per D. Fraser).

WORCS. near Pershore, probably late August or September, brought in alive to the Birmingham Nature Centre (Pinder, per J. E. Green).

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[SURREY]. Kew, on Thames tow-path and in Kew Gardens. For a full account of observation of several specimens, 10/15.8, presumed to have escaped from an exhibition at Syon Park, of the finding of some 40 ova on various species of *Asclepias*, and of the rearing of some of these in captivity, see J. L. S. Keesling, *Bull. Amat. Ent. Soc.* 41:74-75.

It may be noted that an example of *D. plexippus* was seen for several days about 9.10 at Albufera, Algarve, Portugal, and that the island of Madeira recieved a large invasion, with subsequent establishment of the species, in 1981.

Among the common immigrants which were scarcer than usual in 1981, we now have about twenty further records of *C. crocea*, all in August and mostly of single sightings: in Dorset from Charmouth and Winspit, and inland in Surrey from Ranmore and Epsom, and from Merionethshire, and also of singles at Tipton, 3.8, and Standon, 18.8, in Staffordshire and at Swarkeston, Derbyshire, which may have been associated with the unexplained local breeding in Warwickshire, referred to in the main text. Of the diurnal *Macroglossa stellatarum* L. the ninth and most northerly was reported from Matlock, Derbyshire, 4.8.

Additions to Annexe II.

EUCHROMIUS OCELLEA Haw. CORNWALL E. Trebrown-bridge, 9.2, female in trap — the only attendant (AS, *Ent. Rec.* **96**: 238).

*SITACHROA PALEALIS D. & S. SUSSEX. Ninfield, 30.7 (MP), ISLE OF SARK, no date, 1st Channel Islands record (TNDP).

*NYMPHALIS POLYCHLOROS L. GUERNSEY. Vale Pond, first record since 1947 (TNDP).

NYMPHALIS ANTIOPA L. SHETLAND Lerwick, 4.8, by

Mrs. M. Stevenson (Bull. Amat. Ent. Soc. 43:146).

*SCOPULA RUBIGINATA Hufn. ESSEX Great Oakley, 22.7 (Skinner & Wilson, *Moths of British Isles*, 1984); Bradwell-on-Sea, 1.8 (AJD).

RHODOMETRA SACRARIA L. BERKS. Faringdon, 6.9, two, 2.11, this uniformly dull pink with grey line and hindwings (M. H. V. Corley, *Ent. Gaz.* 35:110). YORK, 29.9 (M. R. Britton, *Ent. Rec.*, 96:285).

ORTHONAMA OBSTIPATA F. BERKS. Faringdon, 3 & 4.11 (MHVC, ibid.).

*EUXOA CURSORIA Hb. KENT Newington, 3.8 (PJJ per BS).

AGRIUS CONVOLVULI L. SUFFOLK Walberswick, 29.8; early October, ten; Felixstowe, 28.9 (HEC, Suffolk Naturalist, 19:335. WORCS. Sinton Green, 2.10 (per JEG). CO. DUBLIN, two. CO. GALWAY, one (RFH, INJ., 21:187).

LYMANTRIA DISPAR L. KENT Sevenoaks, 4.8 (Skinner & Wilson, op. cit. 1984). Possibly immigrant, otherwise an escape.

MYTHIMNA VITELLINA Hb. PEMBROKESHIRE. Monorbier, 31.7 (Mrs. D. Rees).

MYTHIMNA UNIPUNCTA Haw. ARGYLL. Barcaldine, 19/20.9 (Dr. J. C. R. Craik).

*ENARGIA PALEACEA Esp. BERKS. Faringdon, 6.8 (MFVC, ibid.)

SPODOPTERA EXIGUA Hb. BERKS. Faringdon, 20.7, (MHVC *ibid*). GUERNSEY. Forest, 8.7 and several to 16.9 (TNDP).

HELIOTHIS PELTIGERA D. & S. GUERNSEY, 24.6 (TNDP). TRICHOPLUSIA NI Hb. BERKS. Sunningdale, 16.9 (per VMA).

*AUTOGRAPHA BRACTEA D. & S. BERKS. Faringdon, 6.8 (MFVC, *ibid*.)

Among the commoner species, the records now include daily observations of Cynthia cardui at Bradwell-on-Sea, Essex (AJD). These give a total of 297 for the year, beginning on 15th May, with small numbers in early June, but showing sharp and probably mainly migratory peaks on 17th July (17), 11th (30) and 28th (31) August, 4th (23), 10th (40) and 15th (71) September, the last example being seen on 3rd October. This compares interestingly with the total there of 987 Vanessa atalanta: this began much more strongly in May and June and after late July showed only small daily peaks with sightings continuing until the end of November. This pattern clearly indicated a smaller relative importance of immigrants and much more local breeding than in C. cardui. At Weston-s-Mare, Somerset it was noticed that, whereas the June examples of C. cardui were all pale in colour, dark forms, newly emerged, were seen on 21st July and were fairly numerous thereafter until 15th October; these presumably were the result of local breeding (CHSB). In Ireland C. cardui was also fairly common, with a total of 367 reported, from 6th June until 15th October, mainly in the south but reaching north to co. Antrim (RFH in Irish Naturalists' Journal 21:187).

Of *Colias crocea*, among the few additional records, two were seen beside the Lancaster Canal in Westmorland, which were the northernmost of the year, in early August; in Oxfordshire singles at Barford St. Michael on 6th June, which was the furthest inland record, on 10th August by the river Thames, 10th August, and at Great Tew, 22nd September (GAP). At Beer, South Devon, two were seen as late as 20th November (TWH). Two seen at Castlemaine, co. Kerry, were the most westerly in Ireland, where the 77 reported from 7th July to 31st October were mostly in southern areas, with the majority on Cape Clear Island, co. Cork (RFH, *ibid.*) But it remains a rather poor year for this species.

The estimated total of over 800 Macroglossa stellatarum can be increased by a further 40, mostly of single examples widely spread. In all, it was reported from 23 English and Welsh counties and three,

Autographa gamma is usually the commonest British immigrant, and it maintained this position in 1982. The trap records at Bradwell-on-Sea show a remarkable total of 4,950 from 16th May to 24th November, and high numbers came also from a dozen other contributors who reported in detail for much or all of the season. From late July onwards numbers were increased by local breeding, but clearly migratory peaks continued, including one on 3rd November, when 50 were trapped at Weston-s-Mare. Real abundance was, however, apparently confined to coastal areas, numbers seen inland being not outstanding. The earliest reported was on 12th May and the last on 26th November. In Ireland 663 were reported, in ten counties the most northerly in co. Antrim; but abundance seems to have been confined to the south (RFH, *ibid.*).

1983

Add to Annexe I - Names of Recorders

G. Acklam, G. M. Chapman, A. R. Collins, J. F. D. Frazer, M. J. Goddard, Mrs. G. Green, A. S. Harmer, M. Hazell, P. Hollindale, A. W. G. John, N. W. Lear, J. Levene, J. R. Miller, E. Patrick, R. Pitman per RFH, Trevor Scott, Roger Smith (Warwickshire county recorder), G. D. Trebilcock and B. K. West.

Delete from Annexe II – Scarce Immigrant species.
Under SPODOPTERA EXIGUA, Preston, 8.11, male, 9.11, female (M. Cade); under TRICHOPLUSIA NI, DORSET, Poole, 15.9 (SCP); under RHODOMETRA SACRARIA, SOMERSET N., Berrow, delete 23.7, substitute 26.8, 26.9, three, 27.9. ENARGIA PALEACEA, (3) BERKS. Faringdon, 18.7, 7.8 (MHVC).

Add to Annexe II - Additional species.

DIASEMIOPSIS RAMBURIALIS Dup. GUERNSEY. 25.9

(P. Costen per TNDP).

*SITACHROA PALEALIS D. & S. DORSET. Portland B.O., 6.8 (MR per NMH). HANTS ISLE OF WIGHT. Freshwater, 31.7 (SAK-J). HANTS S. Hayling Island, 18.7. (JMW). HANTS N. Stockbridge, 25.7, male (MJ). KENT E. Dungeness, 22.7 (ECP-C). SUSSEX E. Peacehaven, 15.7, two (CRP). Possibly some immigrant, otherwise strays from temporary colonies.

*OSTRINIA NUBILALIS Hb. CORNWALL W. Mawnan Smith, 19.8, worn male (APF). SUSSEX E. Peacehaven, 12.7, two, 15.7, three, 22/24.8, three (CRP). CO. CORK MID. Fountainstown,

23.8 (AAM, first Irish record). Coincidence of dates inter se and with other migrants suggests immigration, but the species is now fairly widely resident in south England.

ISSORIA LATHONIA L. DORSET. Margaret Marsh, Shaftesbury, 30.7, one clearly seen, showing underside (J. Simner per

RDGB in lit.).

LITHACODIA DECEPTORIA Scop. SUSSEX E. Peasmarsh, 16.6 (TS, Amat. Ent. Soc. exhibition, 1984, per BS).

CHRYSODEIXIS CHALCITES Esp. DORSET. Arne, 29.9 (Skinner & Wilson, op. cit. 1984: 147).

Add to Annexe II, further records

PALPITA UNIONALIS Hb. DEVON S. Axminster 27.9 (ECP-C).

KENT W. West Wickham, 23.9, 5.11 (MH per JMC-H).

NYMPHALIS ANTIOPA L. BERKS. Crowthorne, 23.9 (L. Chalke, Bull. Amat. Ent. Soc. 43: 81). BUCKS. Beaconsfield, 12.7 (identity checked, per MA). HUNTS. Between Monks' Wood and Bevill Wood, 21.7 (Report of Hunts. Fauna & Flora Society, 1983 per JH).

N. POLYCHLOROS L. KENT E. Stuttlesfield Down (TR/14Q),

19.6 (P. H. Gray per E. Philp).

DANAUS PLEXIPPUS L. GLOS. S. Between Pucklechurch and Dyrham Hall, 18.9, found dead by Mr. Haynes, now in Bristol Museum (per NWL). GLAMORGAN. Lavernock Point near Cardiff. 18.9 (E. Goulden per D. Fraser); Gower, September (Dr. A. Lack

per D. Fraser).

RHODOMETRA SACRARIA L. DORSET. Corfe, 25.8, male, 27.8, two females, 30.8, male, all disturbed by day (ASH); Brownsea Island, 24.9, two, 30.9, three (ATB). HANTS S. Lymington 30.8, 5.9 (ASH); Winchester, 12.9, f. sanguinaria (PHS). KENT W. Orpington, 21.8, female (P. Sokoloff). SUFFOLK W. Monks' Eleigh, 31.8 (AW, Suffolk Naturalist 20:29) SUSSEX W. Selsey, 30.9 (A. Jupp, Bull. Amat. Ent. Soc. 43:198). WILTS N. Old Basing, 3.10 (A. R. Davey, Ent. Gaz 35:152).

ORTHONAMA OBSTIPATA F. DORSET. Preston, 8.11, 9.11 (M. Cade). KENT W. Charlton, 4.6, female, 17.6, male (A. A. Allen,

Ent. Rec. 96:82).

AGRIUS CONVOLVULI L. BERKS. Reading, one early 9 (per MA). DORSET. Poole, August & September, two (SCP). Portland, 8.9, two (MH). ESSEX S. Little Baddow, 19.7 (GAP). HANTS S. Barton-on-Sea, 26.9, male; New Milton, 27.9, on window; Sway, 28.9, female at rest; 29.9, male, 10.10, female (ASH). KENT W. Dartford, 30.9, male on gate post (BKW). SUFFOLK W. Monks' Eleigh, 24.9 (AW, Suffolk Naturalist, 20:28). WILTS S. Whaddon, 28.8., battered; Clarendon, 26.9; Salisbury, 30.9; Bower Chalke, no date, female, (Bull. Salisbury & District Nat. Hist. Soc., 1983:9, R. Pitman per RFH). YORKS v.c 62. Nunthorpe, 20.9, female on

shed (NH). In IRELAND, 31 reported, including those mentioned in Annexe II (RFH, *Irish Naturalists' Journal* 21:324).

ACHERONTIA ATROPOS L. WORCS. Drakes Broughton, September, one full grown larva (P. Cull per JEG). IRELAND: eight in all, including additionally singles from Co. ANTRIM, Co. CLARE, Co. WEXFORD.

THAUMETOPEIA PROCESSIONEA L. GUERNSEY: 19.8 (Rothamsted per BS), on the same night as in Cornwall.

*EUPROCTIS CHRYSORRHOĒA L. YORKS v.c. 61. Muston, 25.7 (POW).

*PELOSIA MUSCERDA Hufn. ESSEX S. Little Baddow, 19.7, in garden trap (GAP).

*MEGANOLA ALBULA D. & S. DORSET. Brownsea Island, 17.7, 22.7 (ATB). SUFFOLK E. Thorpeness, 18.7 (BS).

*EUROIS OCCULTA L. DERBYS. Glapwell, 10.9 (J. Culpin, Proc. Trans. Br. Ent. nat. Hist. Soc., 17:5).

MYTHIMNA ALBIPUNCTA D. & S. HANTS N. Burghclere 16.9 (per MA).

MYTHIMNA UNIPUNCTA Haw. DORSET. Portland, 8.9

(MH).

MYTHIMNA LOREYI Dup. SUSSEX W. Rogate, 4.9 (JACG). SUSSEX E. Peacehaven, 17.6, 12.9, 20.9 (CRP).

SPODOPTERA EXIGUA Hb. SUFFOLK W. Monks' Eleigh, 10.11 (AW, *ibid*).

HELIOTHIS PELTIGERA D. & S. CORNWALL W. Rosewarne, 19.8 (per RIL & IW).

CATOCALA FRAXINI L. WILTS S. Zeals, 22.9, male m.v.l., only the second Wilts record (Stewart Canham per GDT in lit.).

In Annexe II stars indicating residence as well as probable or possible immigration should be added before EURRHYPARA PER-LUCIDALIS Hb., MARUCA TESTULALIS Geyer and PAPILIO MACHAON L.

After the changes made above the total of scarcer immigrant species for 1983 is 58, of which 23 are also resident. 12 non-resident and usually common immigrants were also reported; a few examples of some of these may have survived from 1983 in an unusually mild winter. Of these *Macroglossa stellatarum* L., of which there are many additional records, deserves a fuller mention than already given. A total of about 400 were reported, with ten larvae: about half the number of 1982. It began with a single example, probably hibernated, in Sussex, 4th April, followed after a gap by 25 from 6th June onwards; a dozen in the last week of July; about 250 with a peak in late August and early September, a dozen in October, and the last on 1st November in West Sussex. It was reported in 31 English and 3 Welsh vice counties, reaching up the coast to Anglesey and North Lincolnshire; but it was not numerous north of the

Thames and had its northern limits in Derbyshire and Staffordshire. Larvae were found in Sussex in mid July and in West Cornwall in early August, and local breeding probably contributed much to its later numbers.

Annexe III — The Clouded Yellow (Colias crocea Fourc.)

Since this Annexe was completed important information has become available both from individual recorders and from collective county or regional reports, which in all add about 1,700 sightings to the round total of about 13,000 already mentioned. Among the latter are detailed reports for Dorset (N. R. Webb and J. A. Thomas in Dorset Natural History & Archaeological Society 105: 173-174); the Common Butterfly Survey, 1983 by the Bristol Regional Environment Centre and associated detailed records covering North Somerset and part of South Gloucestershire (per NWL); a summary of the report for Warwickshire by Roger Smith, county recorder (J. M. Price, Birmingham Natural History Society 25: 110); and Rpt. Huntingdonshire Fauna and Flora Society (per J. M. Heath), which contains remarkable single early records at Woodwalton, 20th April and St. Ives gravel pits, 12th May, followed by a total of "well over 100" for the year. We have also had a further list (unpublished) for Sussex (D. Dey), and from Herefordshire (M. W. Harper) over 60 sightings from 27th July / 2nd August and some 20 later, with the last on 29th September.

Most of the additional information broadly confirms the pattern of national distribution already mapped in the Annexe; but the report for Warwickshire, which gives a total of 487 sightings with presumed breeding colonies at Bidford-on-Avon, Harbury and four other places, and also that for Herefordshire, require drastic up-grading of the mapped abundance for these counties and also suggest that penetration and local breeding in the Midland counties generally was greater than we had prevously supposed. The numbers in Warwickshire and Herefordshire, however, show the familiar pattern of main peaks in the last days of July and early August and in late September and early October: in Warwickshire 60 were seen at Charlecote on 2nd October.

Among other new records from Dorset is a valuable account (A. S. Harmer) of breeding at the lucerne field near Corfe, already mentioned by others as a point of special attraction and abundance. One male was seen on 12th June, three males and one female on 14th, and seven, including three females on 15th and 19th, culminating in twelve, two of which were females, on 26th June. On 23rd July fresh specimens were just emerging, with some too limp to fly. On 1st August scores were seen, and on 3rd several hundreds, after which numbers fell until by 11th the species had almost left the lucerne field, although scattered in small numbers elsewhere on the nearby Purbeck Hills. Fresh *C. crocea* were however seen

This timing of much of the life cycle of *C. crocea* in the wild is supported by careful observations of individual larvae *in situ* near Leatherhead, Surrey by K. J. Wilmott. Eggs seen to be laid on white clover (*Trifolium repens*) on 27th July hatched on 4th August, were found set for their first moult on 8th August, and appeared to be ready for pupation on 17th and 18th; none could be found on 19th August, 24 days after oviposition. The dates of emergence of the butterflies is not known. But if seven to ten days are allowed for the pupal period, the whole duration would be about one calendar month, in a locality which was probably less warm than that at Corfe, and later in the season.

Small additions can now be made also to previous numbers in South Hampshire and Isle of Wight, East and West Kent, Middlesex, Northamptonshire, Surrey, and Worcestershire. In Ireland only 93 were reported, all on the eastern side from Co. Antrim to Co, Wicklow. (RFH, *ibid.*). To these we can add reports of fair numbers in August in Murlough N.N.R., Co. Down, in the north; about eight seen 14th August at Tachumshin, Co. Wexford, two others in that county on 3rd and 6th September; and further west at Ballycotton, Co. Cork, 21st July (JMW) and at Cape Clear Island three 28th and 29th July, on 27th August, and a single f. *helice* 13th October (ARC). It seems, however, that the species was nowhere abundant in Ireland.

Further, we have now seen the account of The Clouded Yellow Migration of 1983 by E. Pollard, M. L. Hall and T. J. Biddy (Entomologist's Gazette 35: 227-231), which is based on counts made on weekly transect walks from April to September at 48 sites between the south coast and Westmorland. Detailed numbers are not stated for each site or in total, but the accompanying distribution maps and a histogram of weekly mean numbers per transect count suggest a total of at least 600 sightings (some of which are included in our own records). The histogram shows a dating picture broadly similar to that given by our table in Annexe III. The authors have concluded that from mid July onwards most of their records were of second or third generations locally bred from the June immigrants, though they mention our view that there were considerable later influxes and add that, though this is not supported by their monitoring results, on our view augmentation of the "home bred" by immigrants population cannot be discounted. Since their account differs so greatly from our conclusion that, although local breeding was certainly important, it was unlikely to have contributed more than a minority to the years' total, we state below our reasons for believing that the discount needs to be large. First, we have definite observations of Clouded Yellows flying in from the sea or at rest on beaches, often in numbers, at two localities on 23rd and 25th July and at five others in early August, besides the influx between Studland and Swanage which is already described in the Annexe. Second, at places on or near the coast where daily monitoring was conducted the records show several large and short lived jumps in the numbers seen, both during this period and also in the last week of September, and on some other dates when sightings of actual arrivals are not available. Third, most of the dates of peak records of C. crocea from late July onwards correspond closely with those of other species which were then undoubtedly immigrant (see Annexe II). This cumulative evidence does strongly indicate that primary immigrants made a very large contribution to our records of C. crocea during its period of maximum abundance and probably also in late September. Whether they accounted for as much or more than half of the year's total must, however, remain uncertain.

On the Continent there are several reports of a build-up of the Clouded Yellow in Spain early in the year, and of later unusual abundance in the French Massif Central. In the Netherlands it had a very good season, with 253 widely reported (Lempke, *Ent. Ber.* 1984); and in Norway a few were seen near Oslofjord, the only previous record being of two in 1977 (GKA).

EDITORIAL. — Mr. Paul A. Sokoloff having consented to undertake the duties of Editor, I have great pleasure in stating that he will be conducting *The Record* as from the next issue. He needs no introduction from me, for he is well known to many as one of our foremost amateur entomologists, and I wish him and the future of the magazine every success. I take this opportunity of thanking most cordially all those contributors and readers, members of the editiorial board, printers and others, for their help during my editorship, and trust that they will extend the same goodwill and support to my successor. — J. M. CHALMERS-HUNT.

EARLY MIGRANTS IN SOUTH HAMPSHIRE. — Following news that Mr. Donald Russwurm had taken Hyles lineata Fabr. ssp. livornica Esp. in Brockenhurst on the night of the 3rd April 1985 I was pleased to take a male Heliothis peltigera D. & S. and three Nomophila noctuella D. & S. on the following night in my Lymington garden trap, to be followed by a male H. l. livornica on the night of 6th April. A Cynthia cardui Linn was also seen in Lymington on 6th April. There were strong Southerly winds on the 2nd April and a predominantly Southerly airstream for the next four days. — A. J. PICK LES, 2a Park Avenue, Lymington, Hampshire SO4 9GX.